

FIG. 1

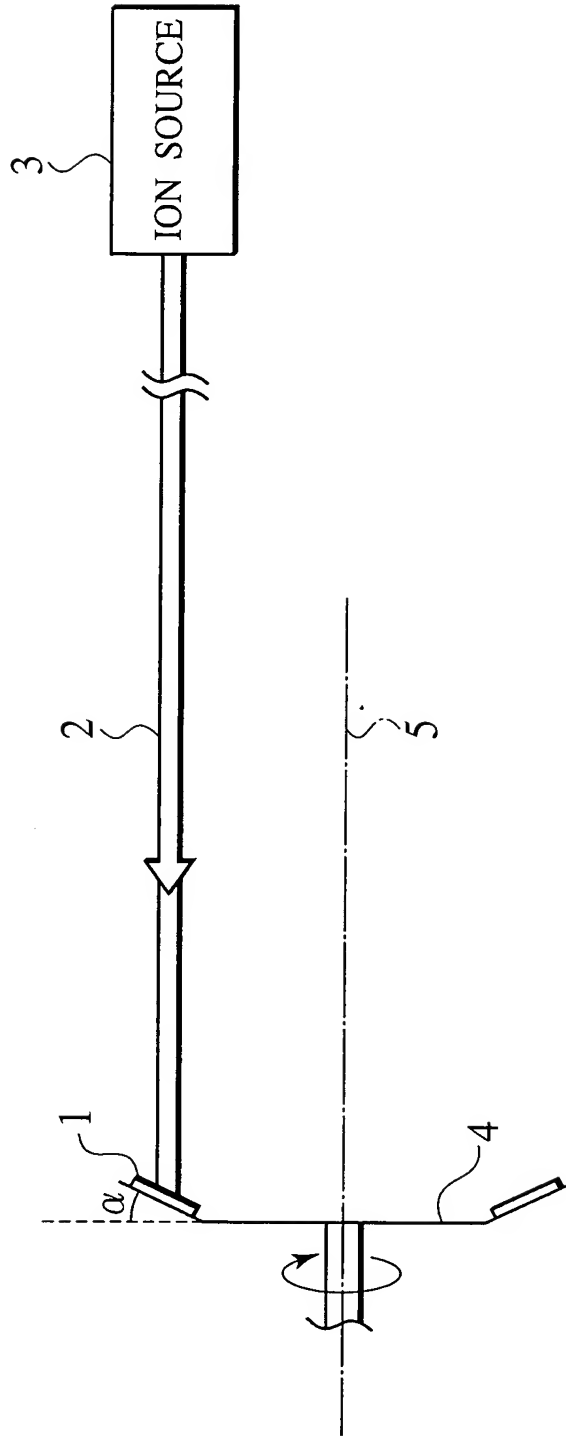


FIG. 2

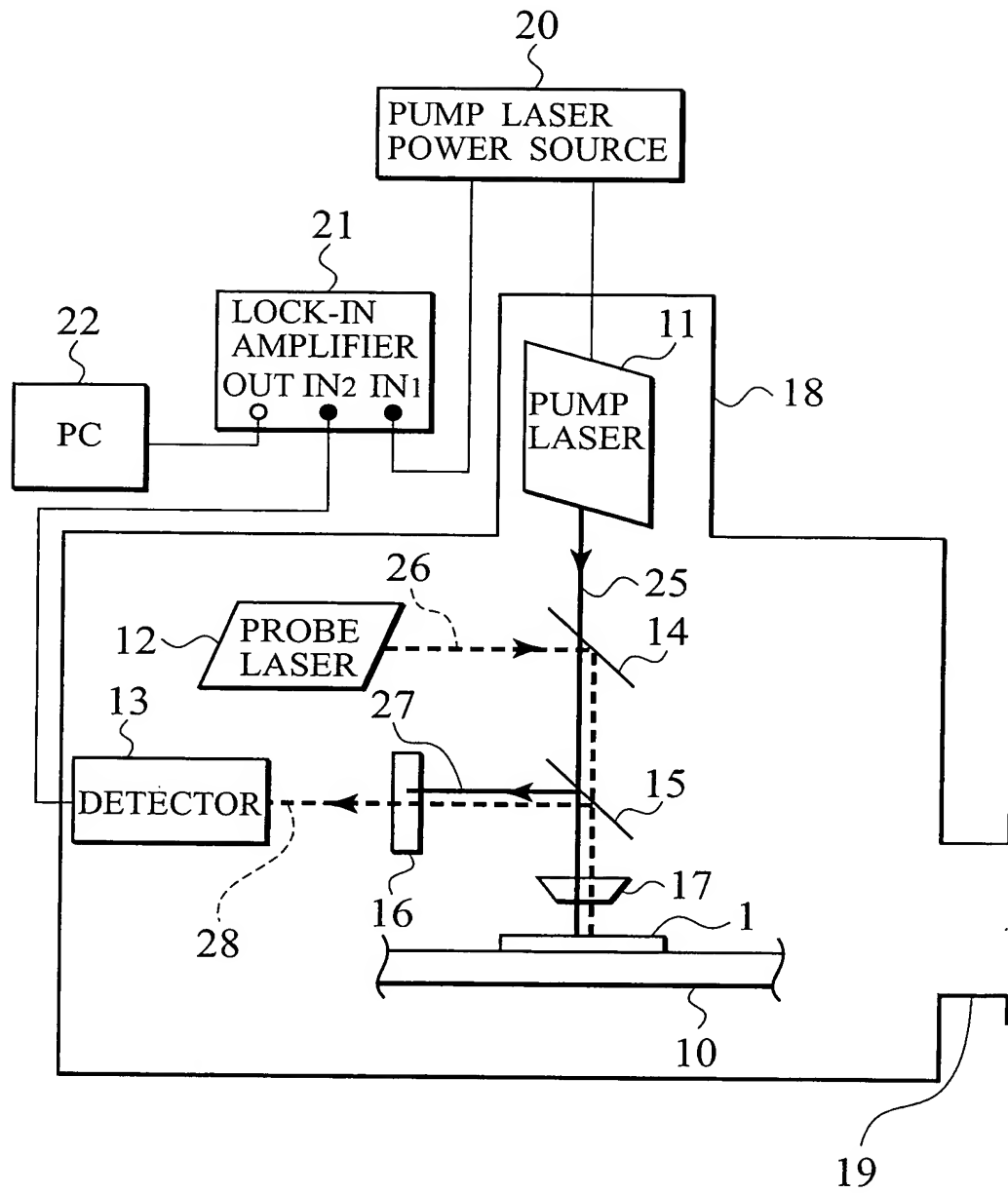


FIG. 3

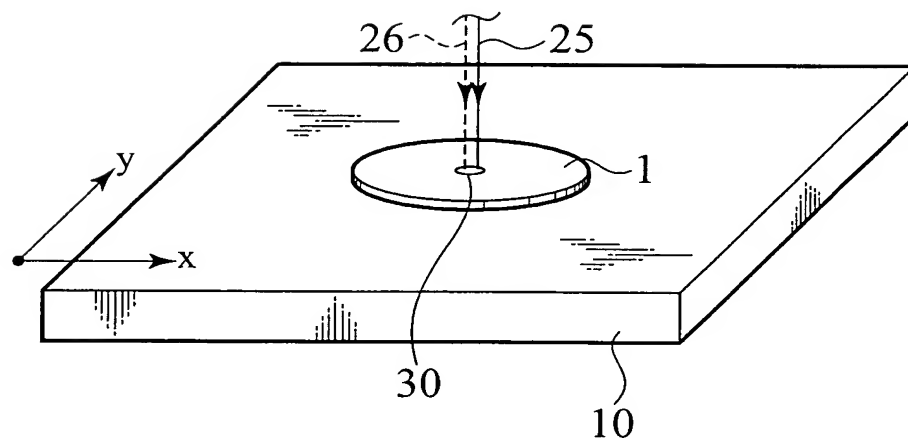


FIG. 4

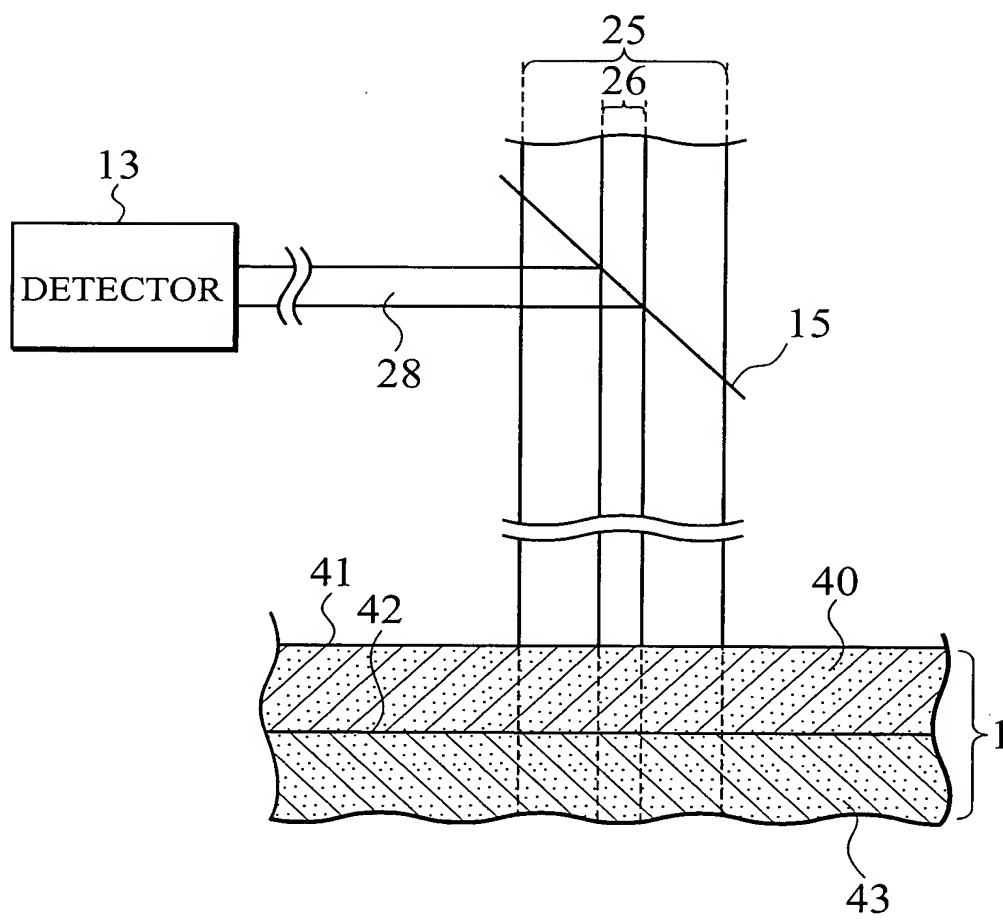


FIG. 5

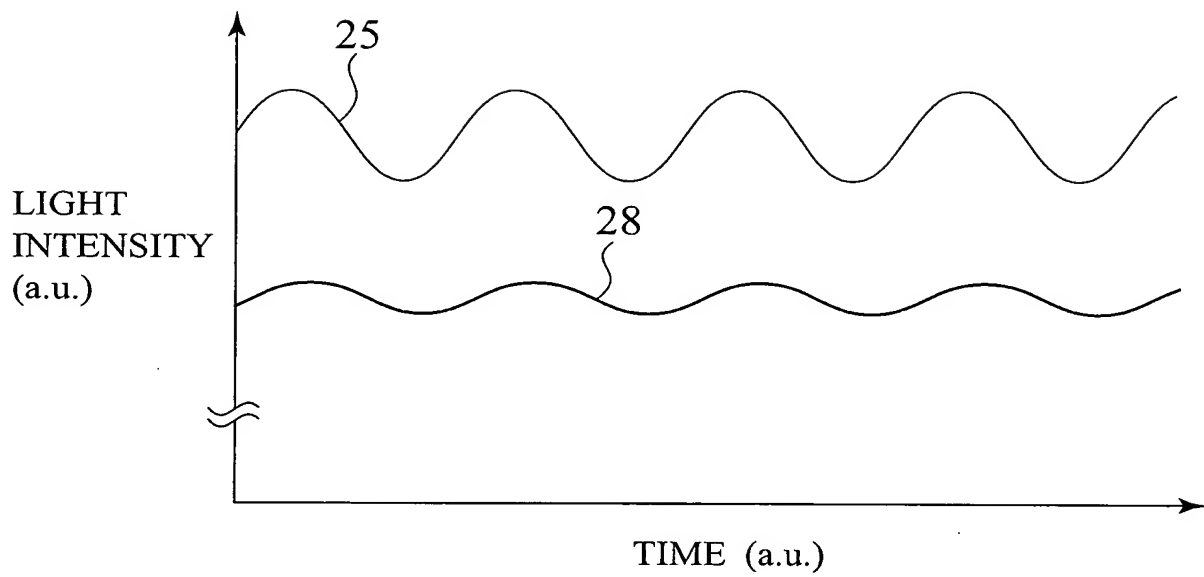


FIG. 6

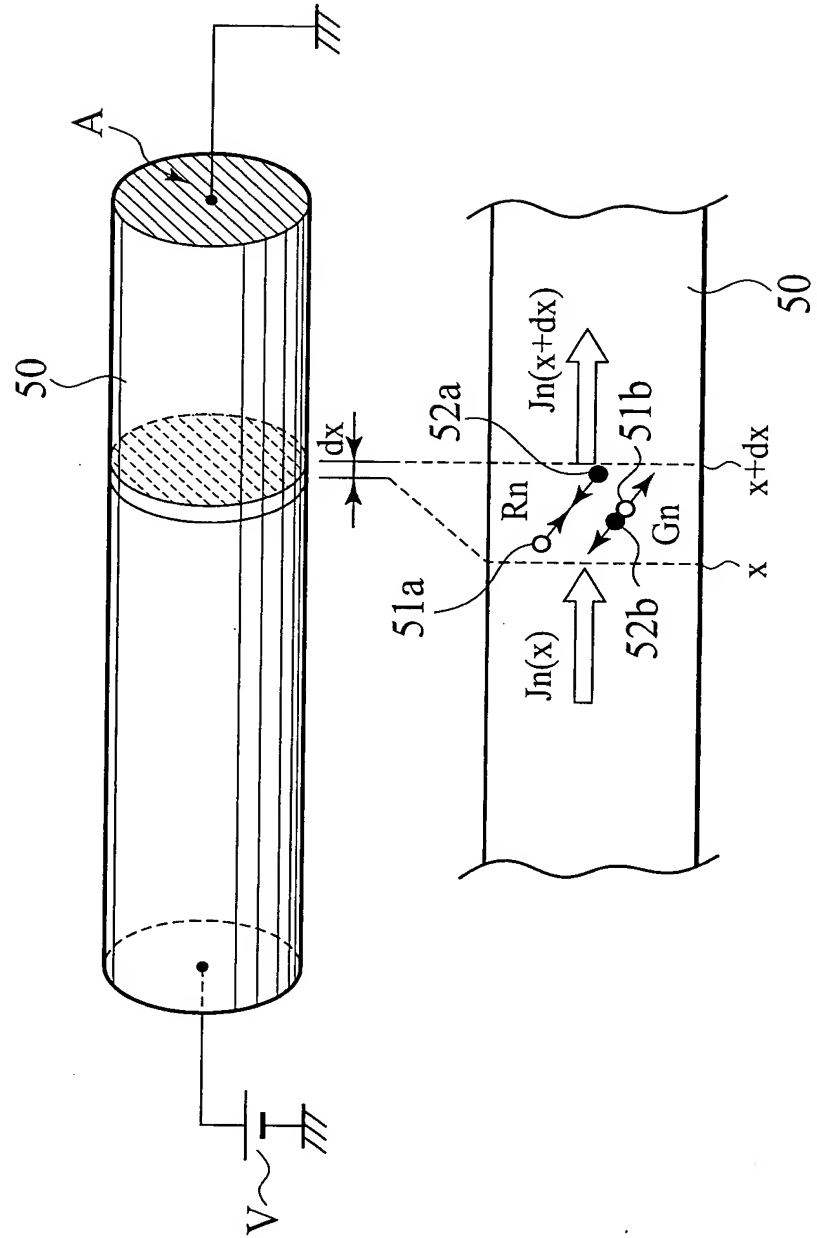


FIG. 7

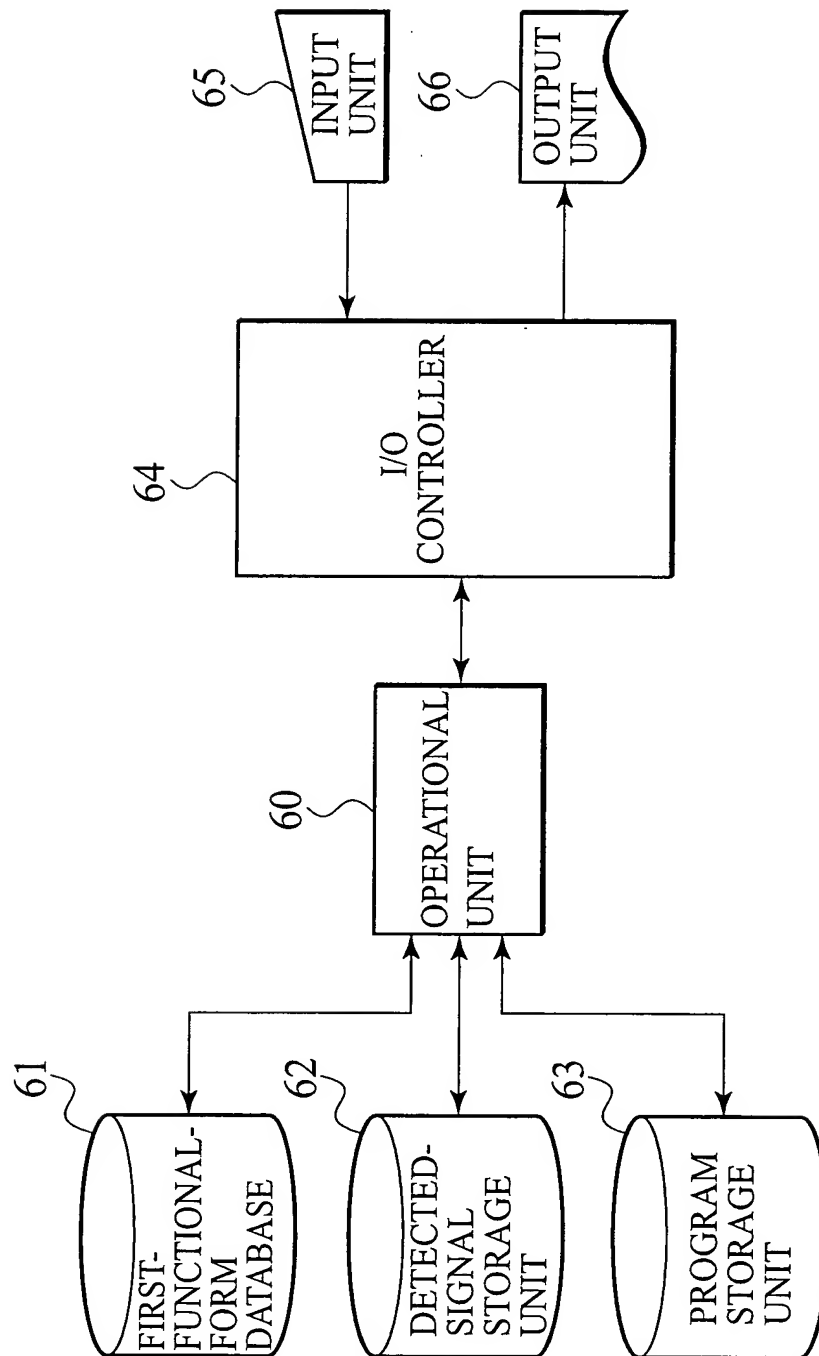


FIG. 8

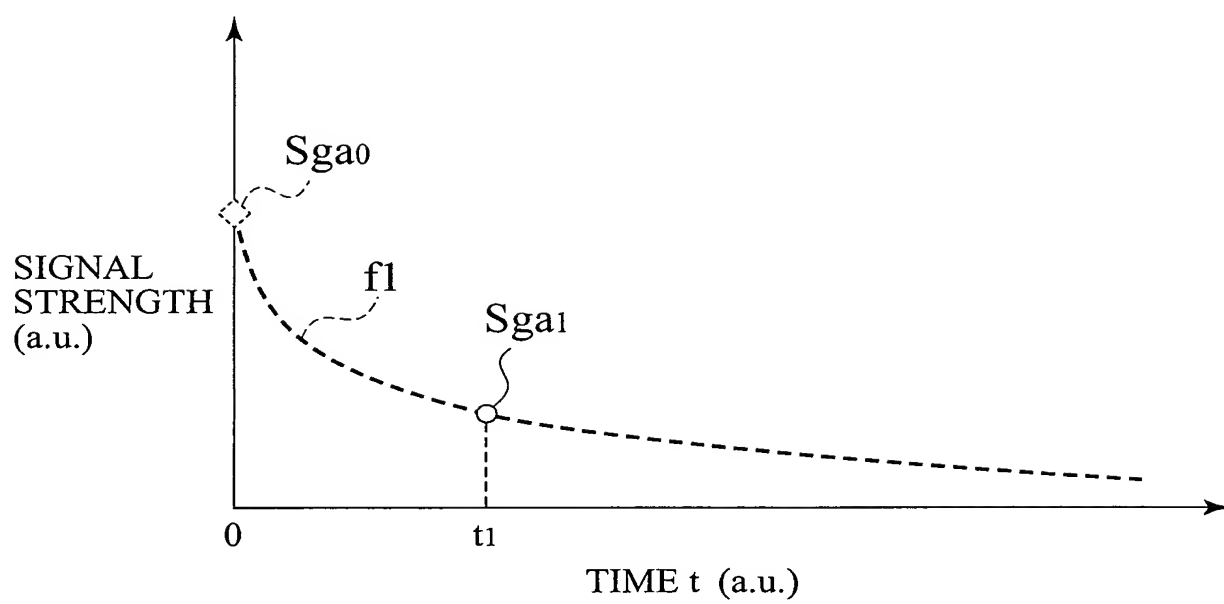


FIG. 9

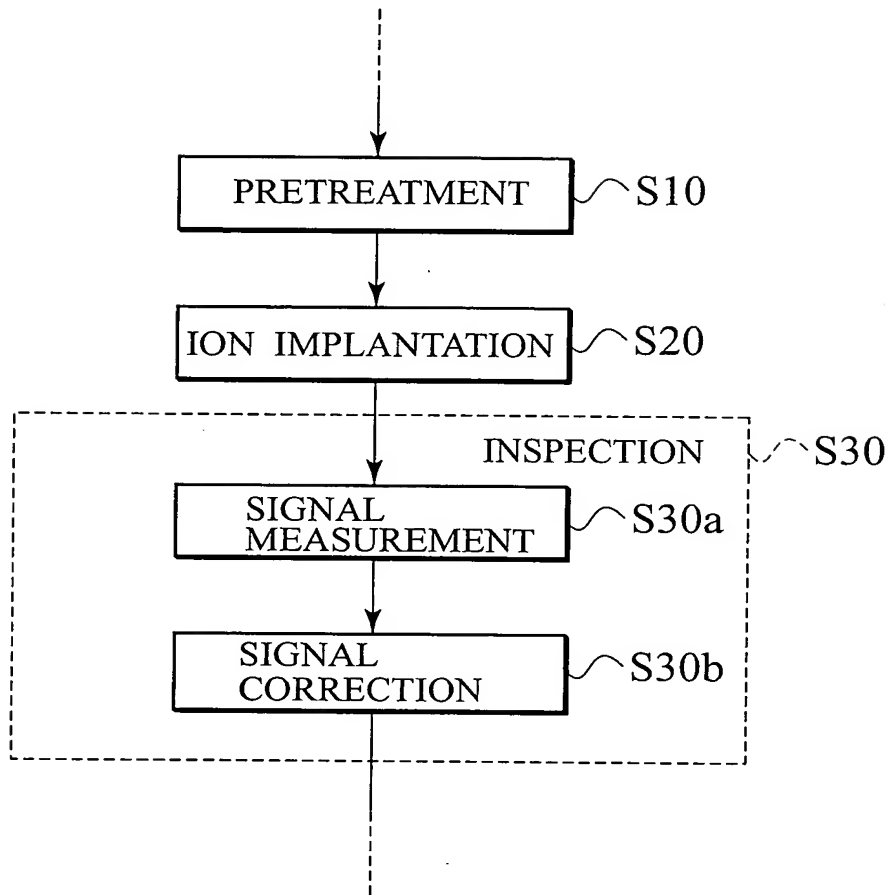
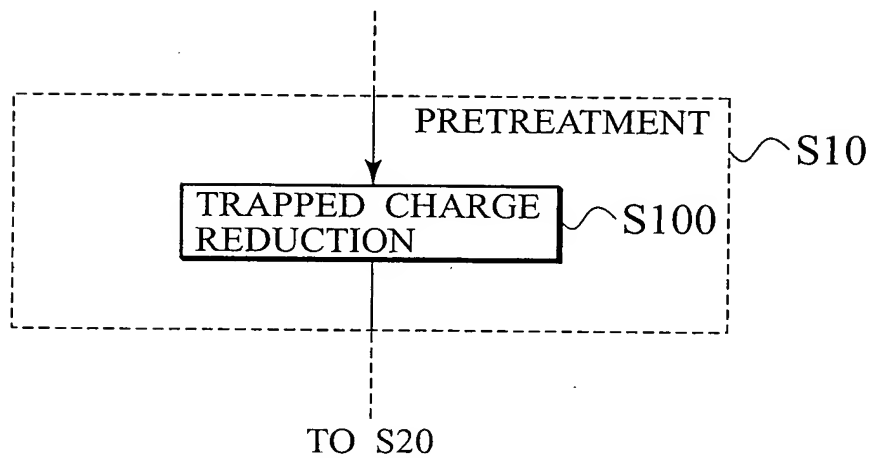


FIG. 10



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FIG. 11

FROM S20

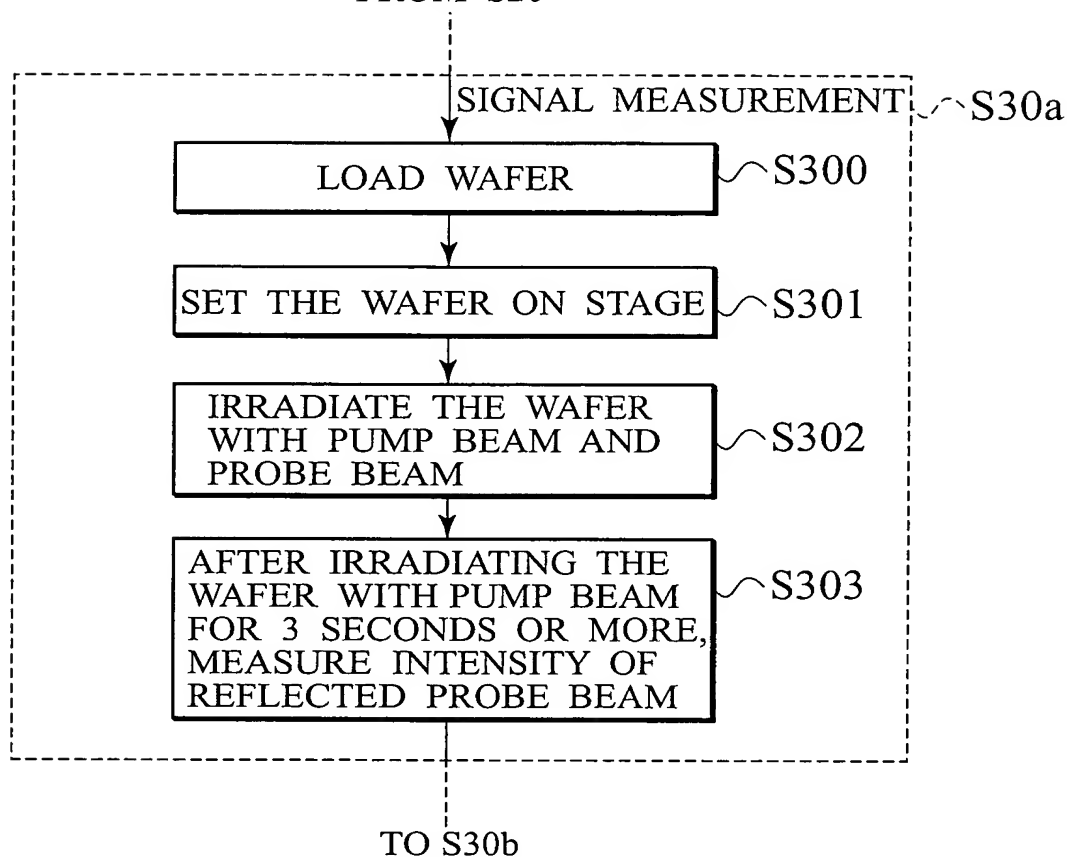
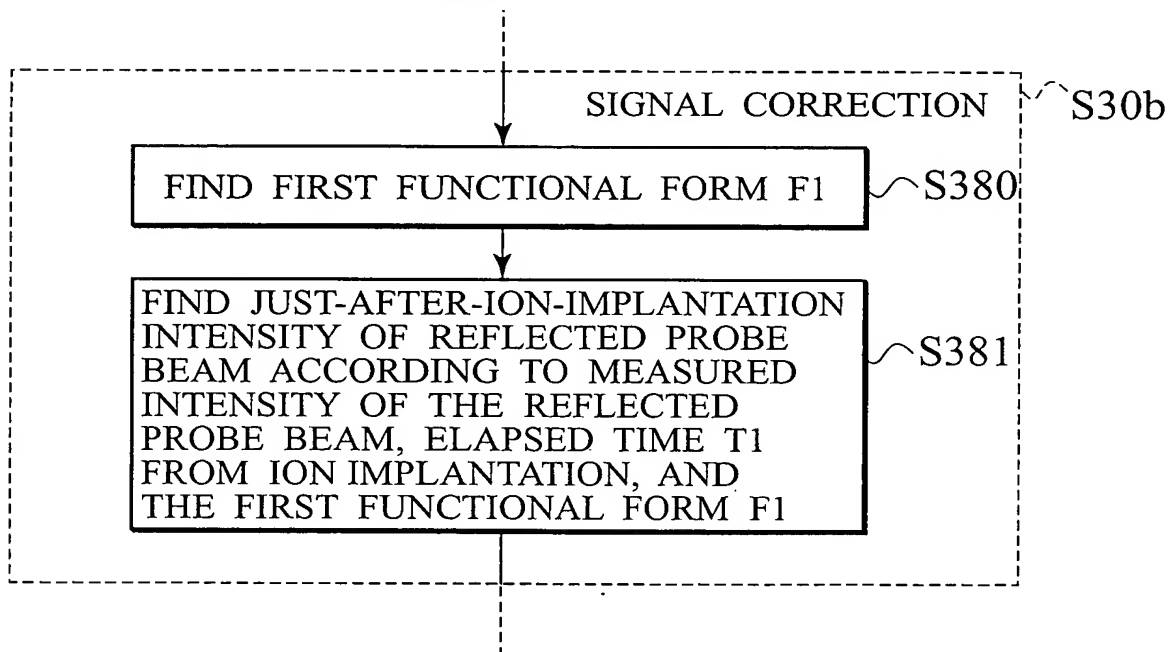


FIG. 12

FROM S30a



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FIG. 13

FROM S20

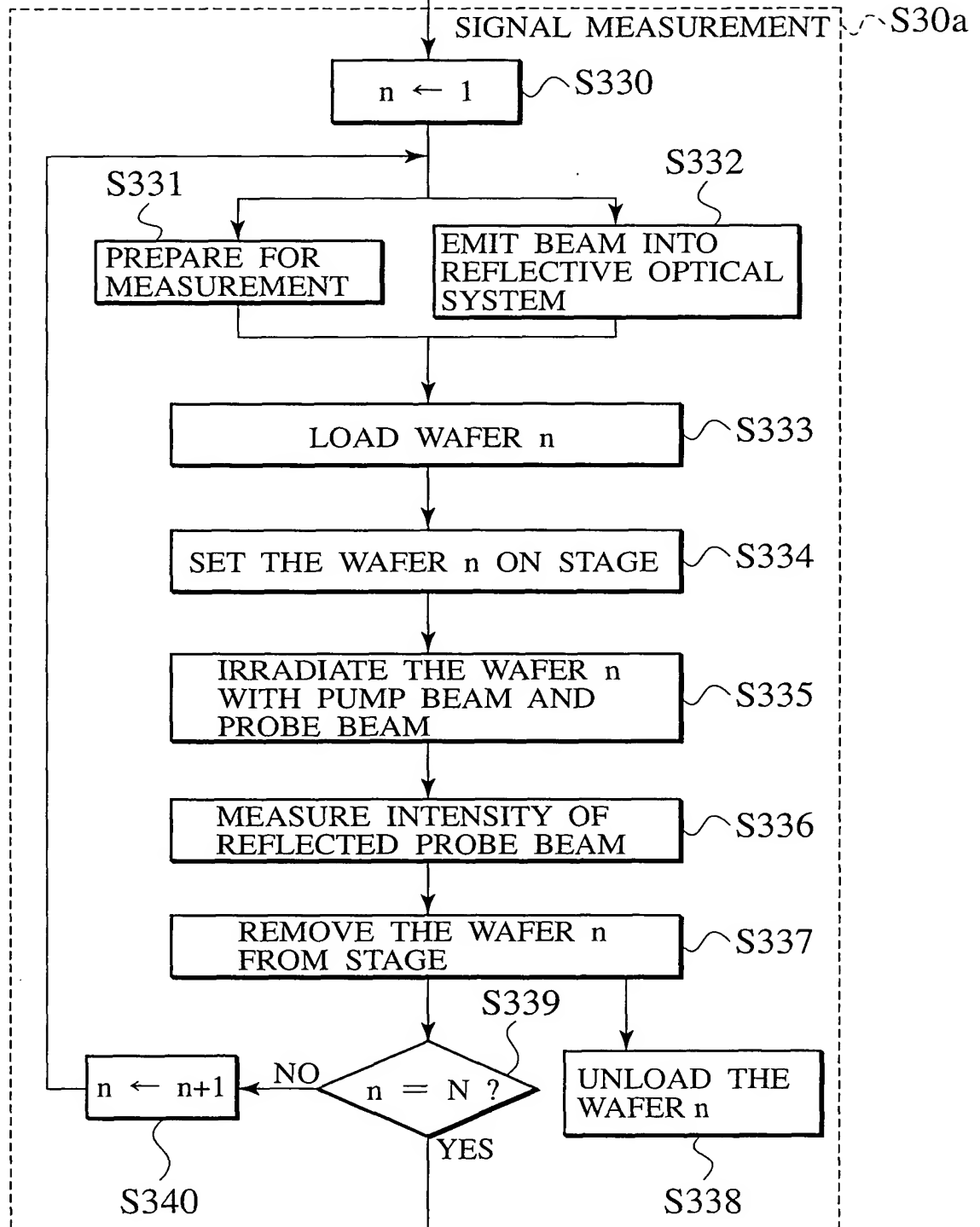


FIG. 14A

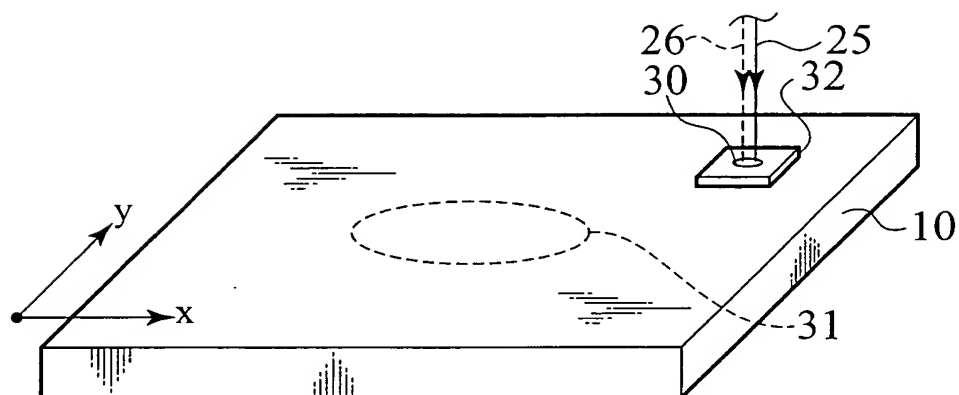


FIG. 14B

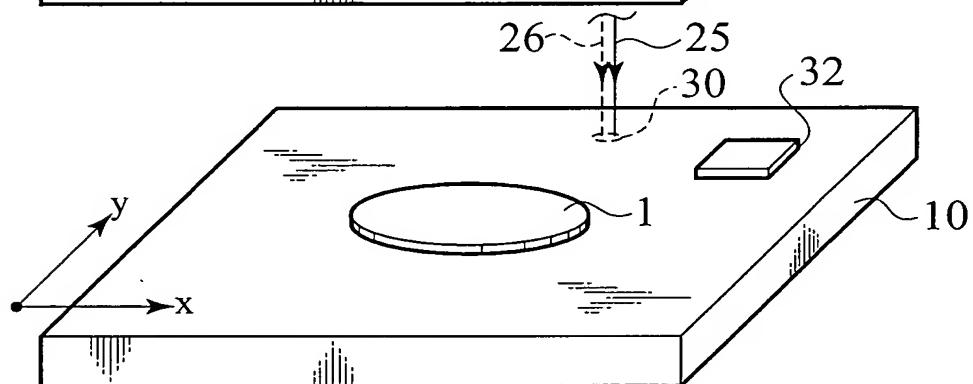


FIG. 14C

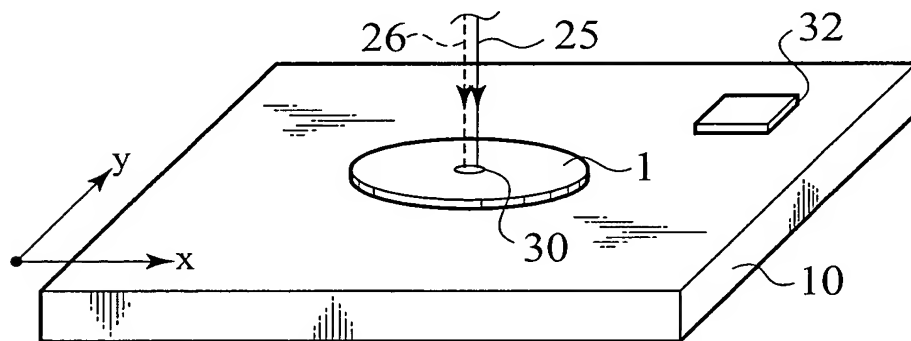


FIG. 14D

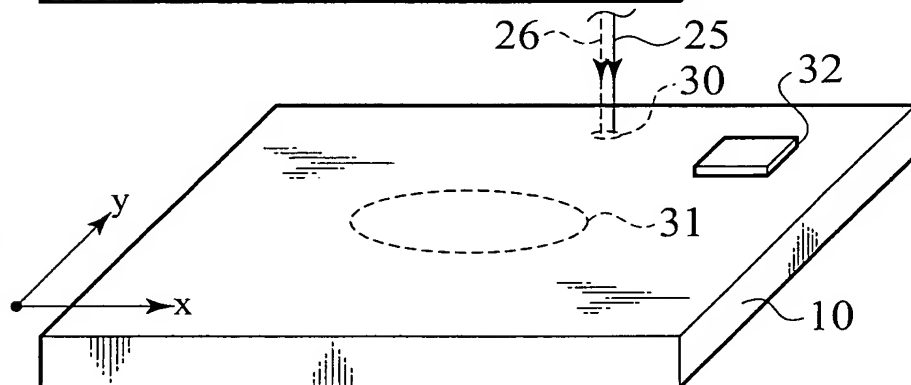


FIG. 15

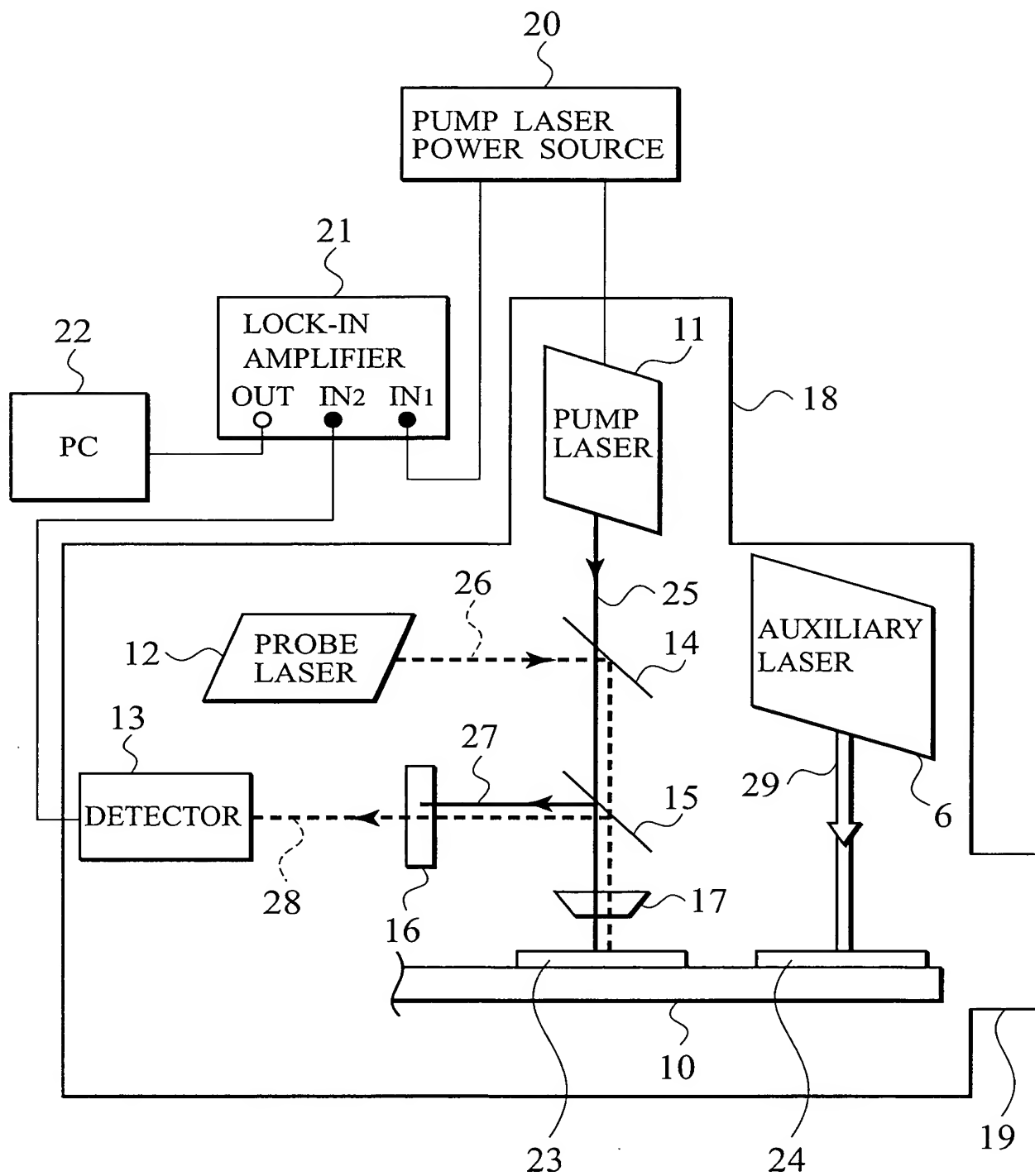


FIG. 16

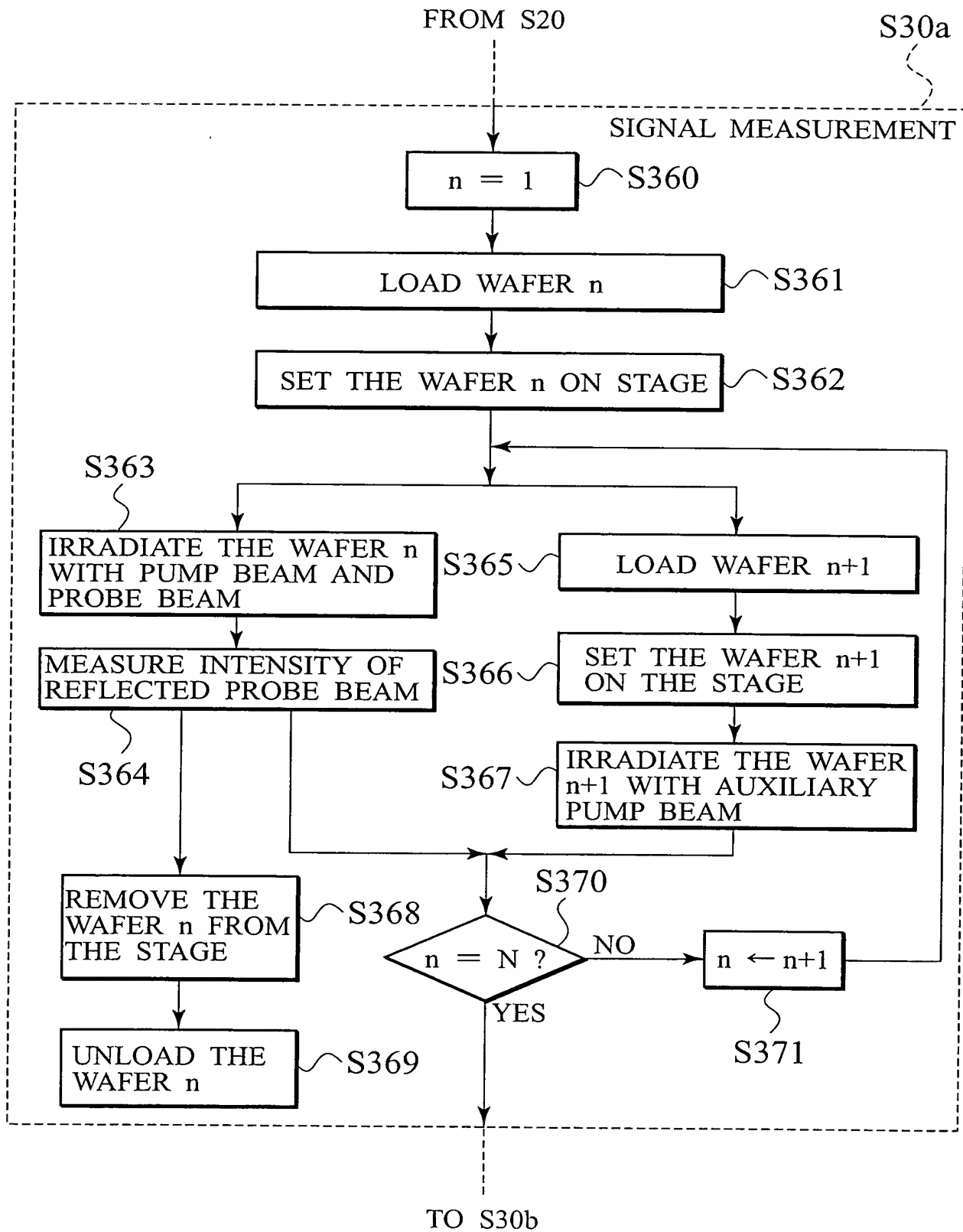


FIG. 17

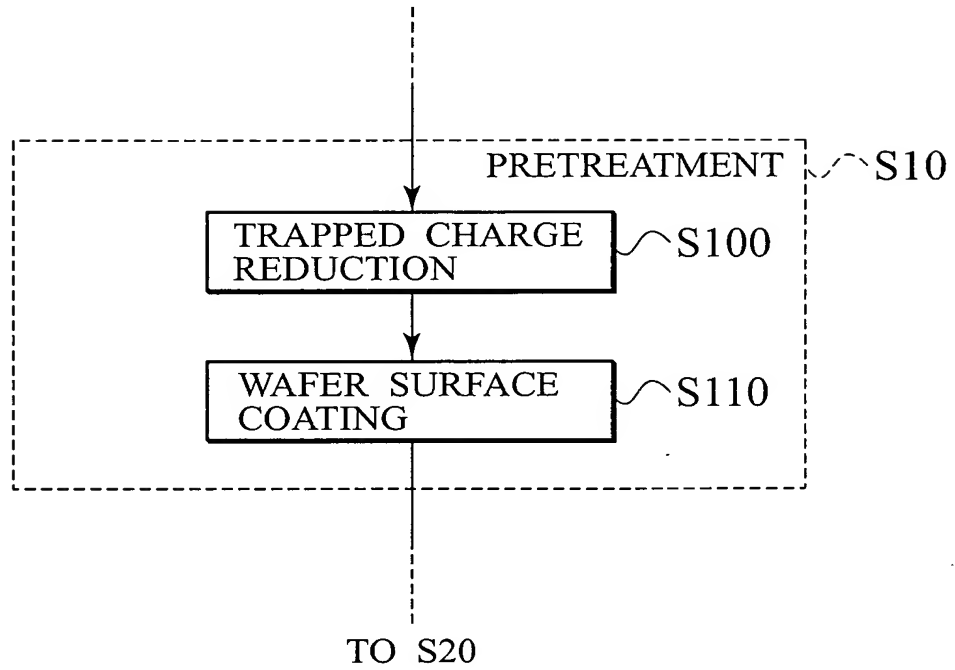


FIG. 18

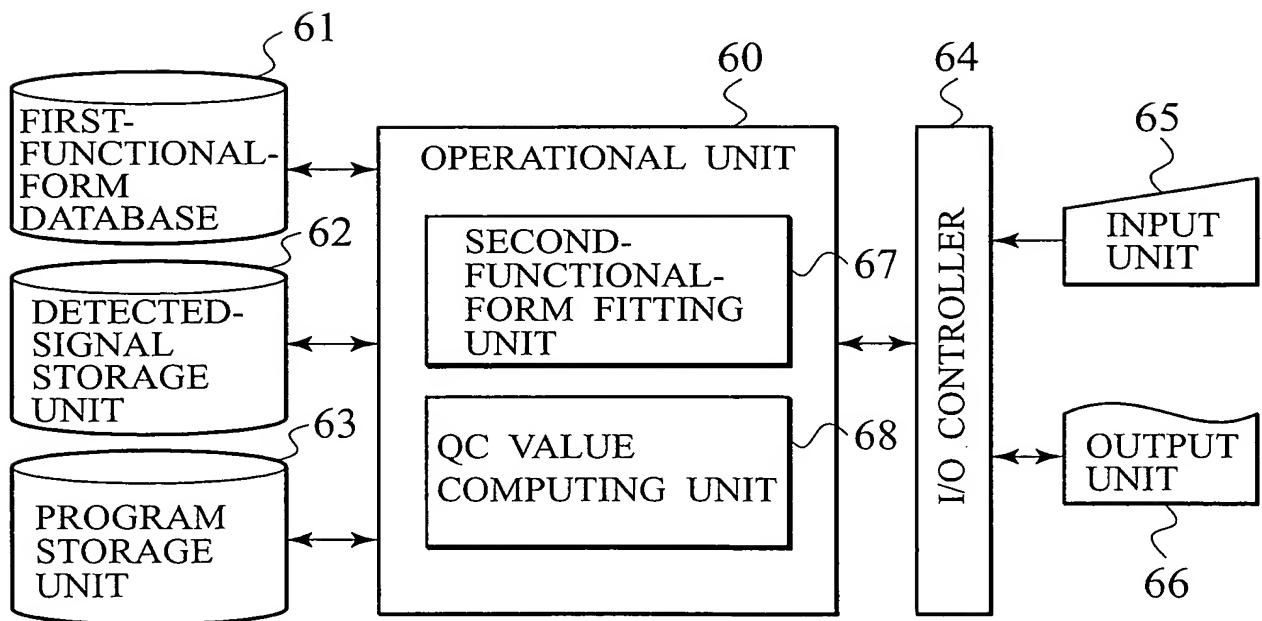


FIG. 19

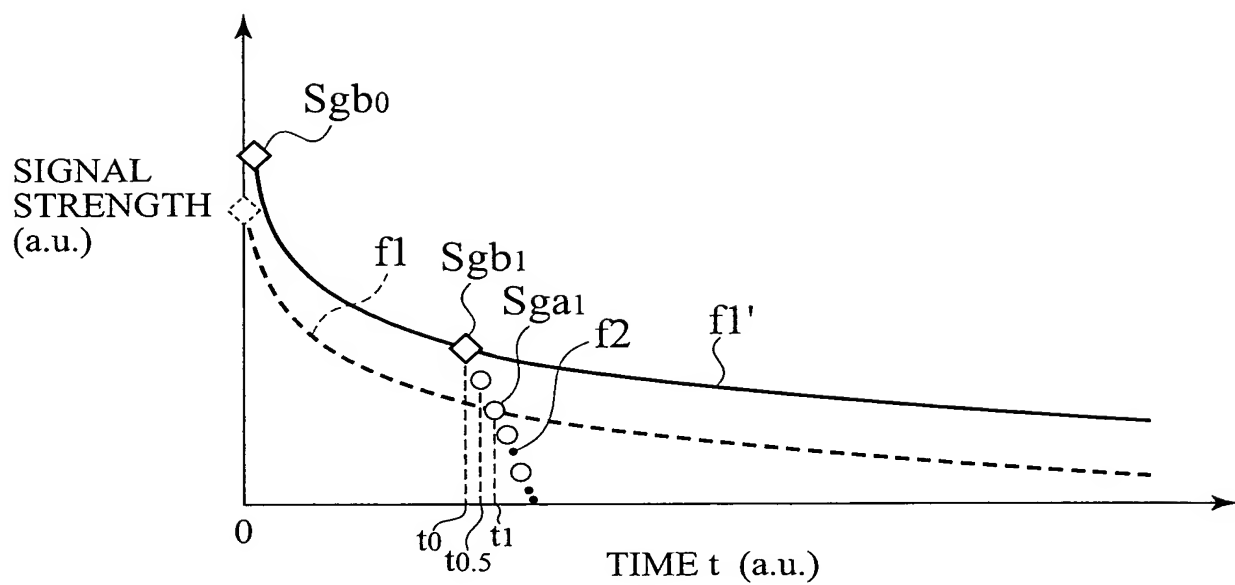


FIG. 20

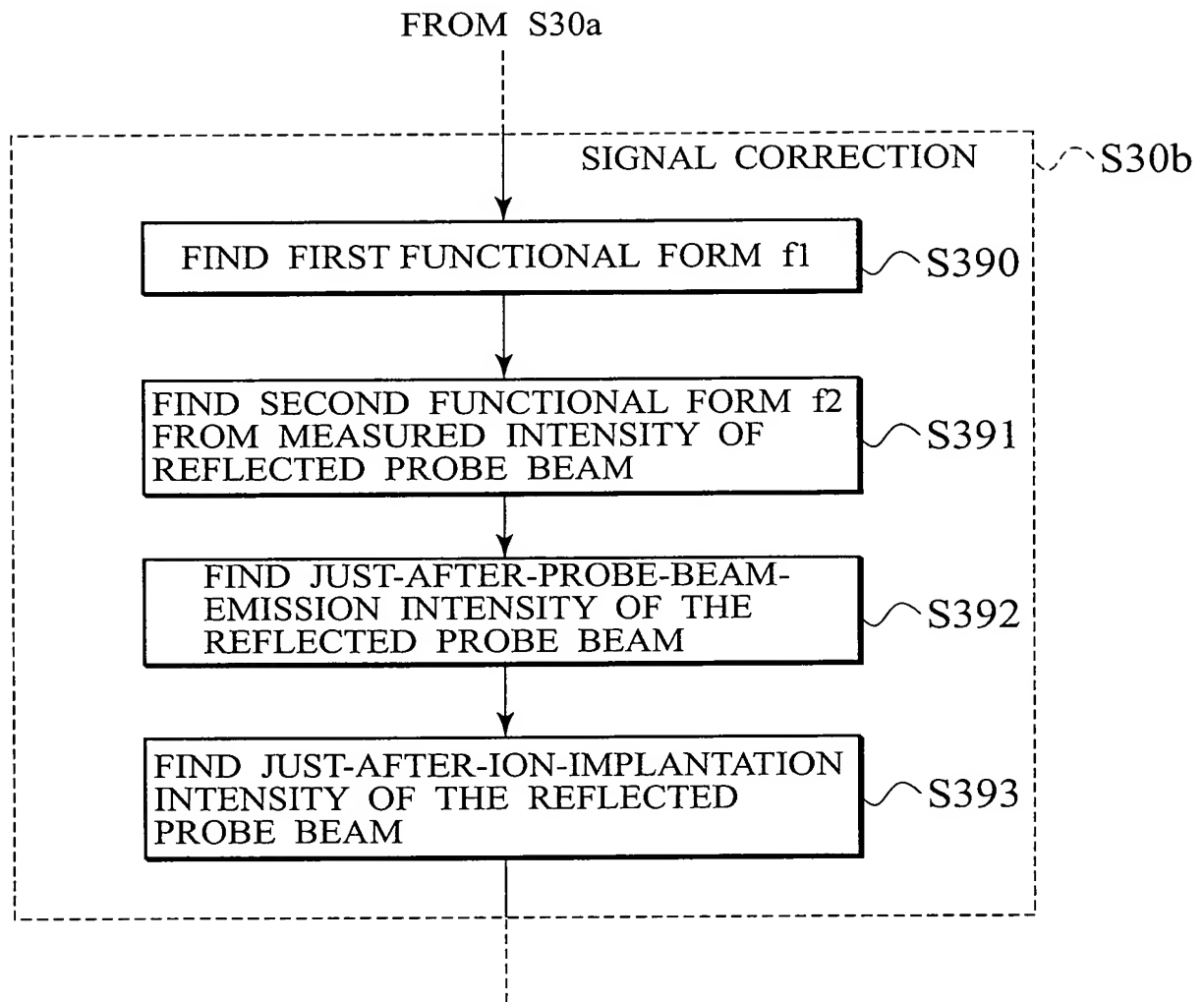


FIG. 21

OXIDE FILM THICKNESS	IONIC SPECIES	ACCELERATION ENERGY	DOSE	ANGLE	ION IMPLANTER	IN-PLANE UNIFORMITY OF SIGNAL STRENGTH CONVERTED INTO DOSE (%)	STANDARD DEVIATION (DOSE) %
8nm	P	500keV	5E+13	+2°	C		0.65
8nm	P	500keV	5E+13	PARALLEL	C		0.38
8nm	P	500keV	5E+13	-2°	C		0.51
8nm	P	500keV	5E+13	-5°	C		2.42

FIG. 22

					IN-PLANE UNIFORMITY OF SIGNAL STRENGTH CONVERTED INTO DOSE (%)
IONIC SPECIES	ACCELERATION ENERGY	DOSE	ANGLE	ION IMPLANTER	STANDARD DEVIATION (DOSE) %
B	3keV	3E+15	'+2°	A	0.483694052
B	3keV	3E+15	PARALLEL	A	0.602034279
B	3keV	3E+15	'-2°	A	0.633528518

FIG. 23

TILT ANGLE	TWIST ANGLE	IN-PLANE UNIFORMITY IN DOSE (%)
0	0	1.01
0	0	1.35
7	0	1.24
5	180	1.36
7	180	1.77
9	180	2.71
7	203	1.40
5	210	0.874
5	225	1.16
5	240	0.913
7	247	2.75
5	255	0.54
5	270	0.60
7	270	1.43

← ION BEAM AND WHEEL
ROTATION AXIS
ARE PARALLEL

→ IMPLANTING
CONDITIONS
TO REDUCE
CIRCUMFERENTIAL
ANGULAR VARIATIONS

FIG. 24

OXIDE FILM THICKNESS	IONIC SPECIES	ACCELERATION ENERGY	DOSE	ANGLE	ION IMPLANTER	IN-PLANE UNIFORMITY OF SIGNAL STRENGTH CONVERTED INTO DOSE (%)	STANDARD DEVIATION (DOSE) %
8nm	B	30	1E+15	2°	B		1.39
8nm	B	30	1E+15	PARALLEL	B		1.34
8nm	B	30	1E+15	-2°	B		1.10
8nm	B	30	1E+15	-5°	B		0.92

FIG. 25

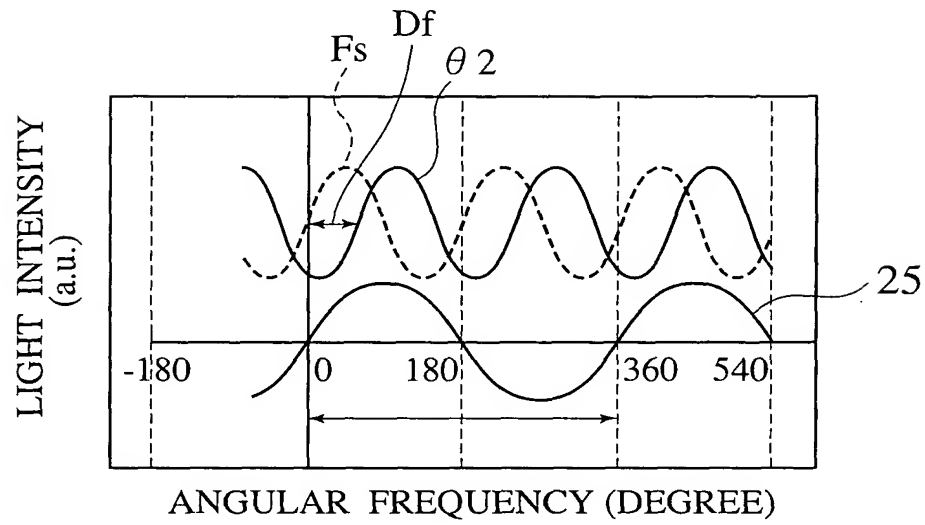


FIG. 26A

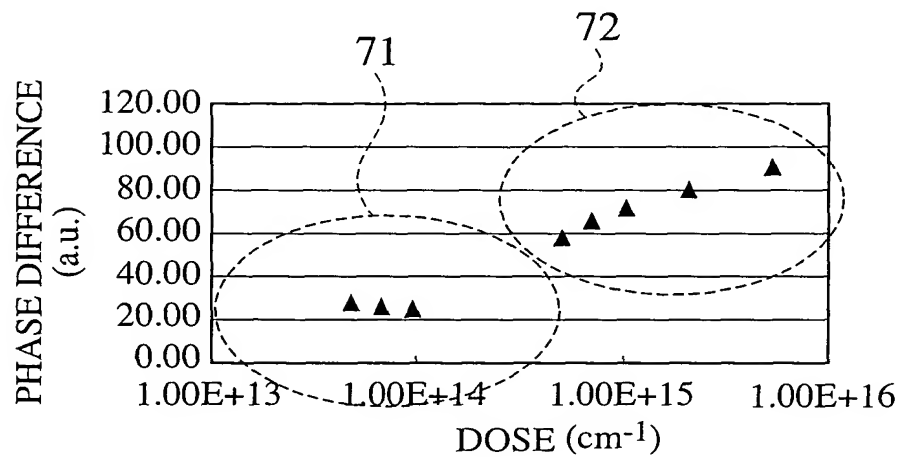


FIG. 26B

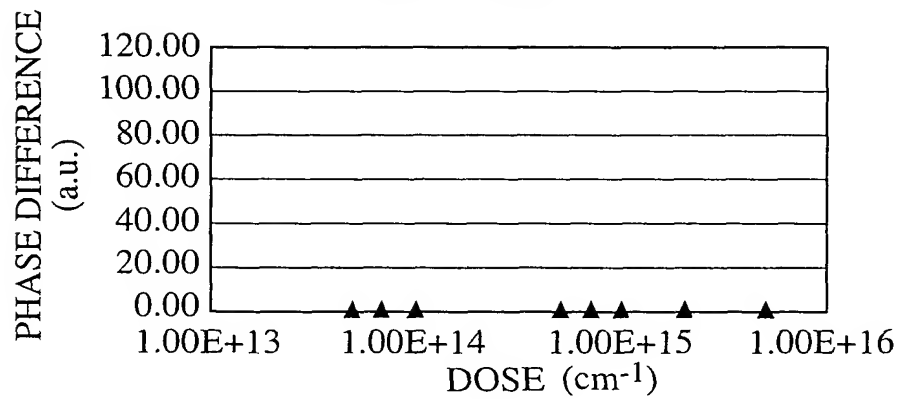


FIG. 27

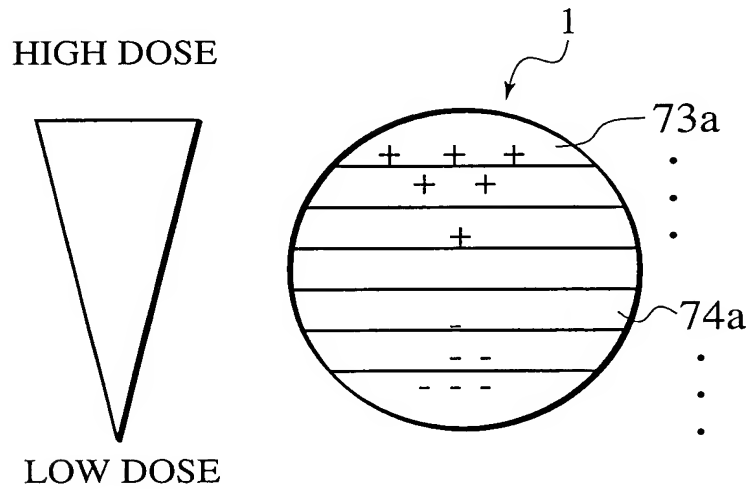


FIG. 28

